Three of the ten samples used for direct colony hybridization showed target-probe hybrids on the colony blot membrane. These samples showed 3, 5 and 1 hybrids out of 127, 58 and 145 cfu, respectively. The isolates obtained from the identified colonies were confirmed as *C. jejuni* in rt-PCR and all but one isolate were tested hippurate-positive.

Discussion and conclusions: In the current study, a species-specific DIG-labelled nucleotide probe has been developed and it was possible to identify few *C. jejuni* among a majority of other *Campylobacter* ssp. on mCCDA plates. However, three isolates from target-probe hybrids could not be confirmed as *C. jejuni* (*C. coli*) but this could probably be explained by difficulties in identifying the right colony or overgrowth from neighbouring colonies rather than a poor specificity of the nucleotide probe. One isolate was found hippurate-negative, however, hippurate-negative *C. jejuni* strains do exist. In this study, *C. jejuni* was isolated from 4 of the 20 examined conventional pigs, which is a relatively high incidence compared to the Danish national surveillance programme, where mainly *C. coli* is found. Hence, this method could help to isolate different *Campylobacter* species in mixed populations and not only the most predominant species, which is likely to be chosen with the conventional method where a few colonies are randomly picked.
The colony blot hybridization can be performed either on all samples without testing of the *C. jejuni* status beforehand or on those samples only, where *C. jejuni* has been found (via pre-enrichment and rt-PCR). The later reduces the number of hybridizations if only few samples contains *C. jejuni* but in addition requires preparations of DNA and PCR. Another consideration, in case of a low level of campylobacter, the pre-enrichment may be necessary to obtain any colonies for hybridization.
The colony blot hybridization method is currently used to study the *Campylobacter* species distribution in 3x16 individual pigs in an outdoor production system (experimental setup) over time (7-14 week old pigs). Despite the expected higher occurrence of *C. jejuni* in outdoor pigs due to the exposure to wild life normally hosting *C. jejuni,* the results so far only indicate very few *C. jejuni* positive pigs, although *Campylobacter* were found in all pigs.

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O 45 Effect of an optimised pelleted diet on *Salmonella* prevalence and pig productivity

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Summary: The effect of an optimised, wheat based pelleted diet containing barley, sugar beet pulp and organic acids on *Salmonella* prevalence and pig productivity was investigated in two finisher herds. The optimised diet significantly reduced *Salmonella* seroprevalence compared to standard pelleted feed and meal feed. In contrast to previous studies, meal feed did not have a significant *Salmonella* reducing effect in this study. Meal diet but not the optimised diet had a significant negative effect on pig productivity, compared to the standard pelleted diet. Our results show that the optimised diet is a suitable alternative to wheat based pelleted feed or meal feed in reducing *Salmonella* prevalence in finisher pigs.

Keywords: feed intervention, barley, acid, coarse grinding, finisher pigs

Introduction: Several studies have shown that meal feed significantly reduces the prevalence of *Salmonella* in finishers, compared to pelleted feed. Meal feed, however, has the disadvantage of reducing pig performance, especially feed conversion. The aim of the present investigation was therefore to study the effect of an optimised, pelleted diet containing several *Salmonella* reducing properties (acid, barley, course grinding). The effect on *Salmonella* prevalence and pig productivity of this optimised diet was compared to standard wheat based diet fed as meal or as pellets.

Materials and Methods: The study was carried out in two swine herds with subclinical *Salmonella* infections. The study comprised 3 diet groups with approx. 600 growing/finishing pigs per group, divided into 43 replicates (23 and 20 replicates in each herd, respectively). **Group 1:** standard wheat based, pelleted diet; **group 2:** wheat based diet fed as meal; **group 3:** optimised wheat based pelleted diet containing barley (35%), sugar beet pulp (10%) and organic acid (0.6% formic acid + 0.6% lactic acid).

The effect of the 3 diets on *Salmonella* prevalence was measured by use of serology. Blood samples were collected randomly from 6 finisher pigs per pen in each replicated trial before transfer to slaughter. Blood samples were analysed using the Danish mix-ELISA with cut-off 20 OD%. In addition, average daily weight gain, feed intake, meat percentage, number of treatments due to disease, and mortality were registered. Based on these registrations and actual pig and feed prices, a production value (PV) was calculated.

Table 1. *Effect of a Salmonella optimised diet on Salmonella prevalence in finisher pigs.*

Parameters	Diet		
	Pelleted feed	Meal feed	Salmonella optimised pelleted feed
Herd A			
No. of pigs sampled	138	138	138
% pigs seropositive for *Salmonella*	59	72	45
Herd B			
No. of pigs sampled	120	120	120
% pigs seropositive for *Salmonella*	50	37	21
Total			
No. of pigs sampled	258	258	258
% pigs seropositive for *Salmonella*	55	55	34

Results: Overall, a significantly lower *Salmonella* seroprevalence of 34% was found in pigs fed the optimised pelleted feed, compared to 55% for both standard pelleted feed and meal feed ($p<0.01$). However, there was a marked difference between the two herds in seroprevalence level, particularly in the meal fed pigs (Table1).

Overall, there was a significantly higher risk of detecting seropositive pigs in groups fed a standard pelleted diet (OR=2.5, p=0.003) or meal diet (OR=2.6, p=0.002), compared to pigs fed the optimised pelleted feed. Herd differences were observed, particularly regarding the meal fed groups, but these were not significant.

Due to technical errors, analysis of the productivity data is based on results from herd A only. The optimised pelleted diet resulted in a lower Production Value index, but this was not significant

compared to standard pelleted feed. In contrast, productivity was significantly affected by the meal diet ($p<0.05$), resulting in a poorer feed conversion compared to standard pelleted feed (Table 2).

Table 2. *Effect of a Salmonella optimised diet on productivity of finisher pigs. Values with different subscripts differ at the 95% confidence interval.*

Parameters	Diet		
	Pelleted feed	Meal feed	Salmonella optimised pelleted feed
FUp/pig/day	2.42	2.45	2.50
Average daily gain (g)	900	834	895
Meat percent	60.1	60.5	60.3
Production value (EUR)	108^a	88^b	102^a
Index	100	82	95

Discussion and conclusion: Our results indicate that pelleted feed may reduce *Salmonella* prevalence in finishing pigs, when *Salmonella* reducing factors such as acid, barley and course grinding are included in the diet. In contrast to meal feed, the optimised diet did not significantly reduce pig performance but the production cost of the optimised pelleted diet is higher.

The observation that a wheat based meal diet failed to reduce *Salmonella* prevalence in finishers significantly compared to a standard pelleted diet, is in contrast to previous experiences. However, as Table 1 clearly shows the effect of meal diet differed quite remarkably between the two herds. The high seroprevalence in meal fed pigs in herd A may be due to the fact that this herd was placed in Level 3 of the *Salmonella* Control Program (indicating a high infection level in the herd) during most of the investigation period. The results in herd B are in accordance with previous studies, even though this herd also experienced a rise in seroprevalence during the study period.

Our results show that an optimised, wheat based pelleted diet containing barley, sugar beet pulp and organic acids is able to reduce *Salmonella* seroprevalence in finishers without significant negative effects on productivity. The optimised diet is therefore a suitable alternative to meal feed and standard pelleted feed. The results furthermore illustrate that feeding strategies alone are not sufficient to combat Salmonella.

O 46 Effect of feeding strategy on Salmonella in Danish sows and weaners

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Summary: The aim of this study was to investigate the effect of feeding strategy on Salmonella prevalence in sows and weaners. The owners of 228 sow herds were interviewed about their feeding strategy with regard to 1) use of home mixed meal feed contra pelleted feed, 2) heat-treated protein contra non-heat-treated protein (soy protein), 3) contents of high-fibre grain types (barley, oat and